

# Reinterpret 3G Emoticons from a Persona Theory

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**Abstract.** As the use of Instant message service increased, emoticons also have been changed and developed in various forms. Especially, 3rd-generation (3G) emoticons are being spotlighted as new communicative tools because they provide wide selection of choice through vividly personified characters. To reflect this trend, this study formulated and confirmed a hypothesis that the more emoticons are personified and sophisticated, the more people tend to regard emoticons as persona. And to prove it, we follow three steps: 1) we account the definition and characteristics of 3G emoticons; 2) we examine whether 3G emoticons reflect people's social personality by adopting Five-Factor Model; 3) based on a great deal of research that has revealed gender differences during real conversations, we analyzed gender differences in 3G emoticons usage through self-report questionnaire. As a result, we verified that people recognized 3G emoticons as kinds of their' persona rather than just tools to facilitate conversations.

**Keywords:** Emoticons, Five Factor Model (FFM), Gender difference, Computer-mediated Communication (CMC), Instant Message Service (IMS).

## 1 Introduction

As instant message service (IMS) like Kakao Talk, Line, and MyPeople released PC version at the end of last year, instant message service finally do away with limited mobile environment and expand their services in the whole online. The rise of instant message service is threatening NATE ON, which has monopolized in the past ten years, and has the biggest influence on computer-mediated communication (CMC). According to the study of Korea Internet Security Agency, the number of subscribers to the instant message service estimated that more than 380 million people (i.e., 89.2% of the total smartphone users) as of October, 2013 [1]. This remarkable growth has fueled a burgeoning market for emoticons, and the emoticons now being used as core tool in computer-mediated communication. In particular, 3rd generation (3G) emoticons have attributes of human and particular characters because 3G emoticons are designed to resemble human, unlike 1st generation (1G) and 2nd generation (2G) emoticons. For this reason, many people can utilize 3G emoticons to suit their preferences as well as trend. Accordingly, we assumed that 3G emoticons could be used as evaluation criteria for people's social personality.

In this paper, we will present and verify three questions with regard to 3G emoticons. First, there has been little discussion about 3G emoticons so far, even though 3G emoticons basically differ from 1G and 2G emoticons. This study, therefore, tries to account the definition and characteristics of 3G emoticons. Second, we examined whether 3G emoticons reflect people's social personality by adopting Five-factor model (FFM). Third, based on a great deal of research that has revealed gender differences during real conversations, we analyzed gender differences in 3G emoticons usage through self-questionnaire method. To sum up, if individual personalities and gender differences are obviously observed in usage patterns of 3G emoticons, can we regard that 3G emoticons reflects people's social self? And can we consider that 3G emoticons are working as a persona? This study, therefore, formulated and confirmed that the more emoticons are personified and sophisticated, the more people tend to regard emoticons as persona.

## **2 Background and Previous works**

### **2.1 Computer-Mediated Communication and Instant Message**

Computer-mediated communication is defined as any communication that occurs through the use of two or more electronic devices, and refers to a cluster of interpersonal communication systems used for conveying written text over the Internet. Generally speaking, the two major parameters across which types of computer-mediated communication most significantly differ are first, whether they are synchronous or asynchronous (i.e., whether or not transmission is essentially instantaneous and interlocutors are assumed to be physically present to read messages and respond to them) and second, whether the communication is one-to-one (i.e., between two people) or one-to-many (i.e., one person's message is broadcast to multiple potential interlocutors) [2]. Instant message, especially, come under one-to-one and synchronous forms because instant messenger is based upon a premise that interlocutors already know one another and communicate with their cell phones in real-time. In view of this, IMS is stronger than other computer-mediated communication forms in respect of private matter, and optimized for comfortable conversation through high-connectivity. Hence, we focused on the study of instant message service, which will provide the examination of reported events and experiences in their natural, spontaneous context, providing information complementary to that obtainable by more traditional designs [3].

### **2.2 Non-Verbal Communication and Emoticon**

A central issue in the research about computer-mediated communication is whether and how the social meaning of interactions is affected by the absence of nonverbal cues when communicators substitute text-based electronic messaging for face-to-face encounters [4-7]. And there have been numerous studies showing that computer-mediated communication lacks nonverbal communication cues and prevents the conveyance of emotions and attitudes to receivers. In addition, research from Lee and Wagner (2002) shows that people express more emotions in positive social contexts

than in negative social contexts, and use more emoticons in socio-emotional contexts than in task-oriented contexts. To sum these studies, it is clear that emoticons allow receivers to correctly understand the level and direction of emotion, attitude, and expression of attention. However, because previous studies used 1G and 2G emoticons for their experiment, those results cannot reflect 3G emoticons in the present. On that score, this paper will examine whether 3G emoticons perform non-verbal communication functions like previous emoticons.

### **2.3 Personality and Gender difference through Five-Factor Model**

As a core aspect of personality, Five-factor model (FFM) has gained widespread acceptance among personality psychologists [8-11]. Much of what psychologists mean by the term “personality” has summarized by the Five-factor model, and the model has been of great utility to the field by integrating and systematizing diverse conceptions and measures [10]. For decades, researchers also have used various research paradigms to examine the relationship between the five-factor model dimensions and gender differences. According to past studies, female are more likely to thank, appreciate, apologize, and to be upset by violations of politeness: they more often challenge offenders who violate online rules of conduct [13-15]. In contrast, male generally appear to be less concerned with politeness; they issue bald face-threatening acts such as criticisms and insults, violate online rules of conduct, tolerate or even enjoy “flaming,” and tend to be more concerned about threats to freedom of expression than with attending to others’ social face [16-17]. As well, females more likely to qualify and justify their assertions, express support of others, and in general, manifest an ‘aligned’ orientation towards their interlocutors [13][18-21]. But males sometimes adopt an adversarial style even in cooperative exchanges while females often appear to be in agreement even when they disagree with one another, suggesting that these behaviors are conventionalized, rather than inherent character traits based on biological sex. Finally, males and females tend to participate more equally in chat environments, both in terms of number of messages and average message length [14]. On average, response rates to males and females are also more balanced [20-21]. In spite of these findings, however, little research has directly addressed that individual personality and gender difference are reflected in the emoticons usage. In consequence, this study will survey whether personality and gender difference appear in the emoticon usage by using Five-factor model.

## **3 3rd Generation Emoticons**

Emoticon, also known as smiley, is derived from the hybrid of “emotion” and “icons”, and is either composed of punctuation characters or of graphical symbols [14]. Emoticons are generally described as important tool, which implement nonverbal communication in computer-mediated communication. As online interactions lack the non-verbal behaviors like facial expressions and body gestures vital to expressing opinions and attitudes, emoticons were introduced to fill a void in online communication [22]. Nonverbal behavior in face-to-face communication may serve three basic

functions: (a) providing information; (b) regulating interaction; and (c) expressing intimacy. And, emoticons can, at least partially, serve the same functions in computer-mediated communication [23-24]. Since emoticons may serve as nonverbal surrogates, suggestive of facial expression, they may add a paralinguistic component to a message. Emoticons may thus enhance the exchange of social information by providing additional social cues beyond what is found in the text of a message [25]. Computer-mediated communication users often incorporate emoticons as visual cues to augment the meaning of textual electronic messages [26]. That is to say, the fact that emoticons are used, implies that individuals at least feel the need to express some of their emotions with simple symbols rather than text.

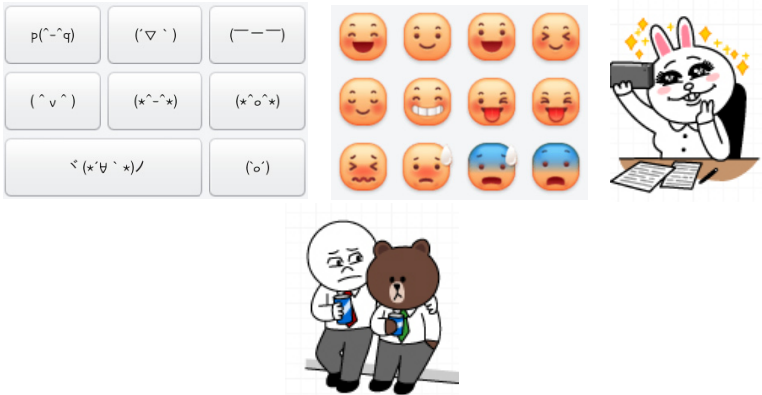


Fig. 1. (From left) 1G, 2G, 3G emoticons

Emoticons has been busy changing and evolving. The earliest emoticon, which is called 1st-generation (1G) emoticon, is nothing but a text form, as opposed to 2nd-generation (2G) emoticon has evolved into pictorial form by modeling the various expressions of human faces. But, 3rd-generation (3G) emoticon called flash-con or sticker, enables to express various feelings and depict specific situations because it reflects certain kind of attributes of human behavior and particular characters (Fig. 1). 3G emoticons thus encouraged greater freedom of expression by adding specific gesture and background, because of these aspect, many people can utilize it to suit their preferences as well as trend.

Another special feature is that the 3G emoticon’s realistic characters allow people to identify with them. Actually, 3G emoticon’s characters have gender, individual personalities, and even relationship because they are designed to be similar to a real person that has one’s persona. These make it is easy for people to connect 3G emoticons and real people who are main characters in the popular TV drama or celebrities (Fig. 2). And, as the use of Instant message increased, these kinds of play have become widespread online. In this regard, this study assumes that 3G emoticon can be used as an evaluation criteria to measure people’s social personality. Accordingly, we classified 3G emoticons on the basis of Five-factor model, and proved whether personality and gender difference appear in the use of 3G emoticons.



Fig. 2. (a) 3G emoticons featuring popular TV drama character (b) Matching between 3G emoticons and celebrities

## 4 Five-Factor Model

Five-factor Model (FFM) is a core model to understand personal taste or characteristics, and consists of five dimensions. The five dimensions can be described as follows: Extroversion (outgoing, physical-stimulation-oriented, assertive, energetic, talkative), Agreeableness (affable, friendly, conciliatory, cooperative, good-natured, trusting), Conscientiousness (dutiful, planned, organized, dependable, responsible, orderly), Neuroticism (emotionally reactive, prone to negative emotions, easily upset, maladjusted, not calm), Openness (inventive, curious, open to new ideas and change, imaginative, independent-minded, intellectual). These dimensions are related to a variety of important life outcomes [12]. For example, high conscientiousness predicts good work performance and good health while low agreeableness and high neuroticism are associated with poor health; high agreeableness is related to helping others;

Personality Dimension	High level	Low level
Extroversion		
Agreeableness		
Conscientiousness		
Neuroticism		
Openness		

Fig. 3. Categorized of 3G emoticons based on five-factor model

high extraversion predicts leadership; high neuroticism is associated with depression; and high openness is related to creativity [27-29]. Also, numerous meta-analytic studies using the five-factor model personality traits as an organizing framework have shown that personality traits are valid predictors of job performance for numerous criteria. In particular, conscientiousness, and to a lesser extent emotional stability, is the most consistent predictor across jobs and criteria [30-32].

Therefore, we categorized 3G emoticons according to five-factor dimensions, and each factor was divided into two levels on the authority of previous findings that five-factor model is generally clear to reveal personality (Fig. 3). Based on specialists' opinion investigation, extraversion contained emoticons with activity. Agreeableness covered emoticons that chime in with other, and openness involved many types of the positive reaction of changes. Also, conscientiousness included diligent emoticons, but in contrast, neuroticism included emoticons that showed negative or anger responses.

## 5 Methodology

We performed self-report questionnaire methodology to verify whether personality and gender differences appear in the usage pattern of 3G emoticons. We chose main instant message channels, which are LINE and Kakao Talk and used 11 emoticon sets (5 sets from Line, 6 sets from Kakao Talk) for experiments because too many emoticons can cause the ambiguity of standard as well as difficulty of the interpretations. First, self-report questionnaire for pilot test was done for three days on and offline, and total number of 42 participants commented on the questions. Second, personality and gender difference experiment were done for seven days online, and total number of 80 participants commented on the questions. Finally, we drew a conclusion through gathering and analyzing questionnaire results based on five-factor model.

### 5.1 Pilot Study

To keep current with trend in the general awareness about emoticons, we conducted a survey on 42 students (30 male, 12 female). Questionnaire consists of two categories (personal information and usage pattern of emoticons) and total number of 13 questions. The questions were as follows, for instance. How often do you use instant message in a day? With whom do you usually exchange instant messages? What are the main reasons for using Instant Message? What are the main reasons for using emoticons? When using emoticons, do you feel vividly/friendly with other people? When do you mainly use emoticons? Do you think emoticons effect your image making? Do you have any emoticons that are most often used? What are the main reasons for using particular emoticons? Do you think emoticons reveal your character or personality? etc. There are thus some of the most frequently asked questions about the recognition of emoticons, and a few questions allow respondents to choose more than one choice.

As a result, first, both male and female equally responded that 3G emoticon is an important factor to help people represent their feelings or personality. Also, most of

the participants said that 3G emoticons provided them with social presence and friendliness like in face-to-face conversation (average male: 88%, female: 92%). Second, the moment they use 3G emoticons, male and female showed different tendency. While male tend to use emoticons in the following order: Making jokes (24%), expressing joy (23%), and showing appreciation (19%), female used emoticons as follows: expressing joy (31%), Making jokes (18%), and expressing sadness (18%). This result showed that female are more likely to show high-level of neuroticism than male, and this is essentially in agreement with the previous study that showed female score higher on neuroticism than male. Finally, both male and female commented that they much used emoticons that is reflect their images and characters than others (male: 64%, female: 84%). In sum, these results highlight the fact that 3G emoticons provide tools to express self, emotional communication, formation of sympathy, and even social presence, which are generally revealed in face-to-face communication. And these facts suggest a new possibility that 3G emoticons can be interpreted as persona theory.

## 5.2 Main Study

The purpose of main study is to verify specifically that people recognized 3G emoticons as kinds of their persona. In order to do that, we conducted two surveys, 1) analyzing relationship between personality traits and the usage patterns of 3G emoticons; 2) examining whether gender differences appear in the usage patterns of 3G emoticons. On that account, we analyzed a correlation between five-factor dimension value and a corresponding tendency in 3G emoticons usage.

**Procedure.** We used data from 80 participants who are students and office workers (40 male, 40 female), and the age range is from 20 to 40 years old. Especially 25 to 35 year olds make up the majority of the participants (88% male, 80% female). To figure out how personality affects the usage of 3G emoticons, we followed three main steps. First, we used personality dimensions from ‘A Korea Version of Big Five inventory (BFI-15)’ [33]. The BFI-15 inventory consists of 15 items. Each question is associated to a Likert scale including five points ranging from ‘strongly disagree’ to ‘strongly agree’ which maps to the interval from one to five [34]. Second, we used self-questionnaire methodology to examine the usage patterns of 3G emoticons. The survey comprises 33 multiple-choice questions and each question has 4 choices, in which five-factor dimension and gender of emoticons were evenly distributed.

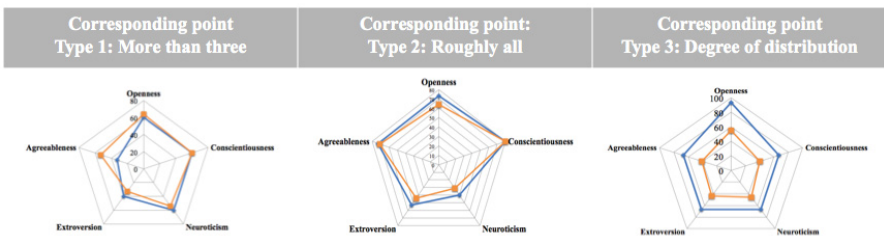


**Fig. 4.** Example of survey question with four answer choices

For example, we asked people to respond to ambiguous sentence like “Recently, I had a very strange experience!” Within four choices, there are 1) neutral gender and neuroticism, 2) female and openness, 3) neuter gender, openness, and extroversion (Fig. 4). Finally, we compared BFI-15 results and questionnaire results, and drew the conclusion that 3G emoticons play important roles in computer-mediated communications.

**Results**

We made observations to test hypotheses that people who are outgoing and open to experience would be more favorable to use emoticons. To do deduction, we analyzed corresponding scores for each participant and categorized into three types, which considered valid range: more than three, roughly all, and degree of distribution (Fig. 5). As a result, we have found notable findings in the analysis as follows. First, female earned high score for matching personality dimension and tendency to use emoticons (60%), but in contrast, male got low score (22.5%). Second, only 5% of male applied than female (37.5%) in case of type 1. Second, female scored 15% unlike male scored 5% in type 2, and then female earned 7.5% similarity than 5% of male. Third, while people who high level of openness and agreeableness more used emoticon, people who are high in level of conscientiousness and neuroticism less used emoticons. Finally, the average distribution between personality dimension value and frequency of 3G emoticons usage also showed almost the same interval, and neuroticism especially more often used precise than others. In view of these facts, it is quite likely that people tend to use 3G emoticons to accommodate individual personality traits.



**Fig. 5.** Three types by corresponding point

Gender difference in emoticons usage also proposed a number of key issues. First, while male use emoticons most often to express teasing/sarcasm (50%), female use emoticons for expressing sympathy (50%) when consolation was required (Fig.6.a-b). Second, male showed the strong tendency not to use feminine emoticons unlike female freely used emoticons regardless of emoticons’ gender. Third, female tended to report high neuroticism while talking to people in intimate people, and male were more likely to reveal neuroticism in public situations or to third person (80% male, 52.5% female) (Fig.6.c-d). Fourth, both male and female did not use emoticons in serious conversations or when they could not precisely capture the feeling of interlocutor (45% male, 32.5% female). Particularly, male tended to respond to ambiguous



sentences as negative actions; on the contrary, female did not (50% male, 7.5% female). Finally, male who respond ‘not use emoticon’ are about twice as many as female in most cases (66.7% male).

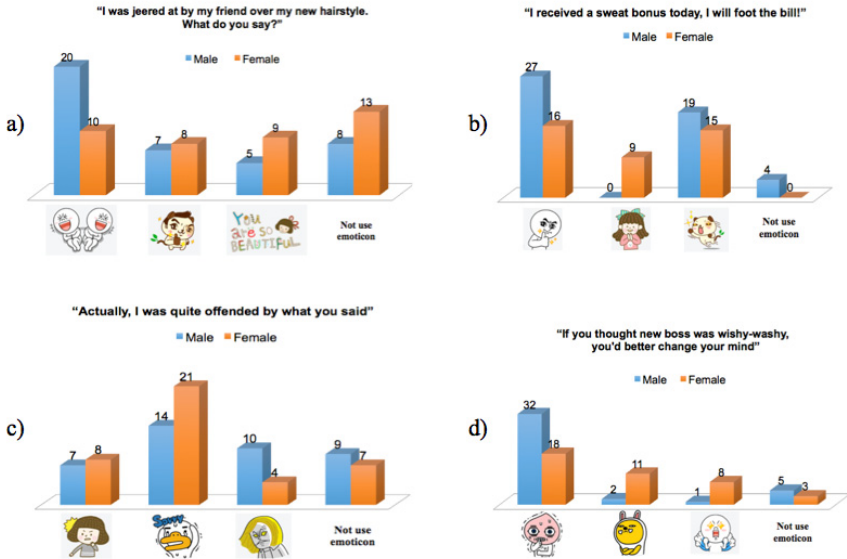


Fig. 6. Examples of gender difference in 3G emoticons usage

## 6 Conclusion

This study formulated and confirmed a hypothesis that the more emoticons are personified and sophisticated, the more people tend to regard emoticons as persona. For this purpose, we conducted two surveys, and found some evidence converging to support the hypothesis. First, both male and female generally recognized that 3G emoticons are useful tool to express people’s various emotions in computer-mediated communication. Also, when using emoticons, many people tend to equate interlocutor with emoticons. Second, female earned high marks for matching personality dimension and tendency to use emoticons than male. And, the average distribution between personality dimension value and frequency of 3G emoticons usage also showed almost the same interval. This result implied that personality traits would influence the pattern of emoticon usage, or in other words, emoticons also would affect user’s personality.

At first glance, the results of this study seem to reinforce the stereotype of the emotional female and the inexpressive male. However, there are noticeable distinctions between male and female in usage pattern of 3G emoticons. Mostly female more express feelings of sorrow than male, and male showed the strong tendency not to use feminine emoticons unlike female freely used emoticons regardless of emoticons’

gender. This result was considered to be the cause that male were more encouraged to socialize with manly persona because gender difference normally includes gender pride, which often invokes binary gender stereotypes. Second, male tend to use more active and sarcastic emoticons, but in contrast, female tend not to use sarcastic or offensive emoticons. This result verified that female considered emotional stability as an important thing in relationship than female. Third, both male and female did not use emoticons in serious situations, even female used emoticons less often in appreciative situations. And, both male and female did not use emoticons when they could not precisely capture the feeling of interlocutor at the moment. This result implied that female tend to respond in earnest to other's appreciation because of their high-level agreeableness, and people want to use emoticons when they want to appear approachable to unfamiliar people, or in casual situations.

This study verified that people recognized 3G emoticons as kinds of their persona, and reflection of personality and gender differences also is shown likewise real conversation. Also, this study presented that 3G emoticons are not just tools to facilitate conversations, and as more and more emoticons are personalized, people can assign them specific meanings and use them in specific contexts. Although further research is needed, this study is meaningful in terms of present, making it possible to interpret the 3G emoticons with Persona theory.

## 7 Discussion

Major difficulty of our study was the classification of 3G emoticons according to five-factor dimensions. Although we categorized 3G emoticons based on specialists' opinion investigation, problem of subjectivity still remains. We think that more consideration needs to be given to alternative methods. Second, this study will be additional survey like 'Participant observation method' because we could not control some variables that may be released in real conversations. Actually, relying on reported data may have an unintended impact on the dependent variable. Next study should include the case study of 3G emoticons usage in real conversation. Finally, future research involving the five-factor model and gender difference might determine the multivariate correlation of five-factor dimensions with 3G emotions, and test the ability of five-factor dimensions to predict people's usage patterns of 3G emoticons.

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